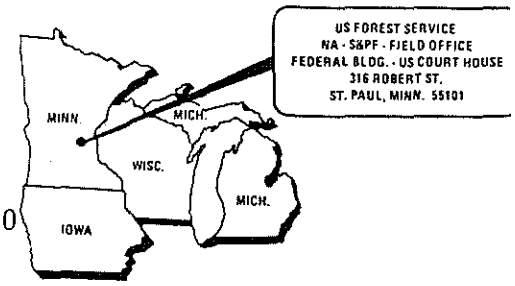
US DEPARTMENT OF AGRICULTURE
FOREST SERVICE

5220

Northeastern Area
State & Private Forestry
DIVISION OF FOREST PEST CONTROL



Rept. No. S-70-8 September, 1970

OAK DEFOLIATION ON THE MANISTEE NATIONAL FOREST - 1970

By Imants Millers and Glen Erickson

INTRODUCTION

Severe oak defoliation was reported to FPC in mid August by the Baldwin and Manistee Ranger Districts. Unconfirmed information suggests that some small areas may have been defoliated in 1969.

CAUSAL AGENTS

A complex of caterpillar larvae is responsible for the oak defoliation. The primary species is the red-humped oakworm, Symmerista canicosta Franc. (for taxonomic changes see Canad. Ent. 78: 96-103).

Other major species associated with the S. canicosta are:

Variable oak-leaf caterpillar, Heterocampa manteo (Dbldy.)
Orange-striped oakworm, Anisota senatoria A&S.
Orange-necked caterpillar, Datana contracta (Wlkr.)
Post-oak locust, Dendrotettix quercus Pack.

Any one of the 4 species may be abundant in a given area, but their numbers are less than 1/4 of S. canicosta.

Few specimens of several tussock moths and other caterpillars were observed, but they did not appear to contribute to the defoliation significantly.

METHODS

The aerial survey was flown on September 9, 1970, by J. Benz, Cadillac Ranger District, and G. Erickson, FPC. The flights were in north-south directions; in parallel lines 5-6 miles apart; at 3000-4000 ft. above ground; and 120 m.p.h. Only severe defoliation appearing as gray blocks of trees were mapped.

Ground examination shows that the mapped areas are mostly oak. The trees are completely defoliated. Since the insect feeding progresses from the lower branches upward, partial defoliation was not visible from the air.

RESULTS AND DISCUSSION

About 250 sq. miles, or 160,000 acres, of oak type is severily defoliated (Map 1). Since the partially defoliated stands were not visible from the air and the estimated larval feeding continued for 2 more weeks, a much greater area of defoliation must be assumed.

The last major outbreak of the red-humped oakworm occurred from 1956-1958, when at the peak in 1957, about 45,000 acres were defoliated. At that time, apparently, only the red-humped oakworm was present in significant numbers.

In the past, late summer defoliators, such as found in this outbreak, have not caused direct tree mortality. Most of the tree food synthesis is completed by September. However, coincidence of late spring frosts the following season and repeated fall defoliation could weaken trees and predispose them to secondary insects and diseases.

The migrating larvae became a problem in homes, campgrounds and on highways. The defoliation will also reduce the quality of fall color tours.

RECOMMENDATIONS

1. The Forest Manager is advised to consider the present outbreak and its affect on timber and recreation values.

2. The FPC should be requested to make more detailed evaluations, such as defoliation forecast and timing of defoliation for 1971, if deemed necessary by the Forest Manager.

3. Information for release to the public should be requested from FPC, as needed. It is important that only information acceptable to cooperating State agencies is released.